भारतीय प्रौद्योगिकीसंस्थानमद्रासचेन्नै 600 036
INDIAN INSTITUTE OF TECHNOLOGY MADRAS Chennai 600 036
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G. Chitrapavai
Deputy Registrar (Stores & Purchase)

Dated : 17.08.2019

Tender No. IITM/SPS/CC/RC/NETWORK MANAGED SWITCHES/009/2019-20/SPL

Dear Sirs,

On behalf of the Indian Institute of Technology Madras, Tenders are invited for the purchase of

"Supply of Network Managed Switches under Rate Contract for one year"

confirming to the specifications enclosed.

Tender Documents may be downloaded from Central Public Procurement Portal **https://etenders.gov.in/eprocure/app**Aspiring Bidders who have not enrolled / registered in e-procurement should enroll / register before participating through the website https://etenders.gov.in/eprocure/app. The portal enrolment is free of cost. Bidders are advised to go through instructions provided at "Help for contractors". [Special Instructions to the Contractors/Bidders for the e-submission of the bids online through this eProcurement Portal"].

Tenderers can access tender documents on the website (For searching in the NIC site, kindly go to Tender Search option and type 'IIT'. Thereafter, Click on "GO" button to view all IIT Madras tenders). Select the appropriate tender and fill them with all relevant information and submit the completed tender document online on the website https://etenders.gov.in/eprocure/app as per the schedule attached.

No manual bids will be accepted. All quotation both Technical bid and Financial bid should be submitted in the E-procurement portal.

1	**LAST DATE for receipt of Tender**	**:**	**09.09.2019 before 02.00 p.m.**
	Date & Time of opening of Tender	**:**	**12.09.2019 at 04.00 p.m.**
A	**Submission of Tender**	÷	As per the directives of Department of Expenditure, this tender document has been published on the Central Public Procurement Portal URL: https://etenders.gov.in/eprocure/app The bidders are required to submit soft copies of their bids electronically on the CPP Portal, using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the CPP Portal, prepare their bids in accordance with the requirements and submitting their bids online on the CPP Portal. More information useful for submitting online bids on the CPP Portal may be obtained at:https://etenders.gov.in/eprocure/app Both Technical Bid & Price Bid should be submitted separately in online CPP portal as per the specified format only. Right is reserved to ignore any tender which fails to comply with the above instructions. **No manual bid submission is entertained.**

B	**Instructions for online bid submission**	:	**REGISTRATION** i. Bidders are required to enroll on the e-Procurement module of the Central Public Procurement Portal URL:https://etenders.gov.in/eprocure/appby clicking on "Online Bidder Enrollment". Enrolment on the CPP Portal is free of charge. ii. As part of the enrolment process, the bidders will be required to choose a unique user name and assign a password for their accounts. iii. Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the CPP Portal. iv. Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Class II or Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / TCS / nCode / eMudhra etc.) v. https://etenders.gov.in/eprocure/app?component=%24DirectLink&page=DSCInfo&service=direct&session=Twith their profile. vi. Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSCs to others which may lead to misuse. vii. Bidder then logs in to the site through the secured log-in by entering their user ID / password and the password of the DSC / eToken.
	Guidelines, Terms and Conditions of Tender		
C	**Searching for tender documents**	:	i. There are various search options built in the CPP Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, organization name, location, date, value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as organization name, form of contract, location, date, other keywords etc. to search for a tender published on the CPP Portal. ii. Once the bidders have selected the tenders they are interested in, they may download the required documents / tender schedules. These tenders can be moved to the respective **"My Tender"** folder. This would enable the CPP Portal to intimate the bidders through SMS / email in case there is any corrigendum issued to the tender document. iii. The bidder should make a note of the **unique Tender ID** assigned to each tender, in case they want to obtain any clarification / help from the Helpdesk.
D	**Preparation of bids**	:	i. Bidder should take into account any corrigendum published on the tender document before submitting their bids. ii. Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid. iii. Bidder, in advance, should prepare the bid documents to be submitted as indicated in the tender document / schedule and generally shall be in PDF / XLS formats as the case may be. Bid documents may be scanned with 100 dpi with black and white option. iv. To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, GSTIN Details, annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use **"My Documents"** area available to them to upload such documents. These documents may be directly submitted from the "My Documents" area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.

			v. All the technical related documents need to be uploaded in Technical bids for evaluation purpose.
E	**Submission of bids**	:	i. Bidder should log into the site well in advance for bid submission so that he/she upload the bid in time i.e. on or before the bid submission date and time. Bidder will be responsible for any delay due to other issues. ii. The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document. iii. Bidder has to transfer the EMD as applicable by online mode only. The EMD should be transferred on or before the closure date and time of the tender. If the EMD is not transferred before the closure date and time, the tender will be summarily rejected. The EMD transferred to IIT Madras (as per IIT Madras Account details given in Clause I (i) and the proof of transfer has to be submitted in the technical bid. Otherwise, the tender will be summarily rejected. iv. A standard BOQ format has been provided with the tender document to be filled by all the bidders. Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. Bidders are required to download the BOQ file, open it and complete the detail with their respective financial quotes and other details (such as name of the bidder). If the BOQ file is found to be modified by the bidder, the bid will be rejected. v. The server time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission. vi. The **Tender Inviting Authority (TIA)** will not be held responsible for any sort of delay or the difficulties faced during the submission of bids online by the bidders due to local issues. vii. The uploaded tender documents become readable only after the tender opening by the authorized bid openers. viii. Upon the successful and timely submission of bids, the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details. ix. Kindly add scanned PDF of all relevant documents in a single PDF file of compliance sheet.
F	**Assistance to bidders**	:	i. Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender. ii. Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24x7 CPP Portal Helpdesk. The contact number for the helpdesk is [0120-4200462, 0120-4001002, 0120-4001005]
G	**General Instructions to the Bidders**	:	i. The tenders will be received online through portal https://etenders.gov.in/eprocure/app. In the Technical Bids, the bidders are required to upload all the documents in pdf format. ii. Possession of a Valid Class II/III Digital Signature Certificate (DSC) in the form of smart card/e-token in the company's name is a prerequisite for registration and participating in the bid submission activities through https://etenders.gov.in/eprocure/app iii. Digital Signature Certificates can be obtained from the authorized certifying agencies, details of which are available in the web site https://etenders.gov.in/eprocure/appunder the "Information about DSC".

H	**Opening of the tender**	**:**	The online bid will be opened by a committee duly constituted for this purpose. Online bids (complete in all respect) received along with proof of transfer EMD (if any) will be opened as mentioned at "Annexure: Schedule". Bid received without EMD details (if present) will be rejected straight way. The technical bid will be opened online first and it will be examined by a technical committee (as per the eligibility criteria, specification and requirement). The financial offer/bid will be opened only for the offer/bid which technically meets all requirements as per the specification.
I	**Earnest Money Deposit (EMD)**	**:**	i. **EMD for Rs. 20,000/- should be transferred to the following bank account on or before due date 09.09.19 before 2.00p.m.** **Name : Registrar IIT Madras** **Bank : State Bank of India** **Account No : 10620824305** **Branch : IIT MADRAS** **IFSC CODE : SBIN0001055** ii. The EMD transferred to IIT Madras as per IIT Madras Account details given above and the proof of transfer has to be submitted in the technical bid. Otherwise, the tender will be summarily rejected. iii. **Performance Guarantee**for the values of Rs.50,000/- has to be submitted by way of DD/Bank Guarantee by the successful bidder only. iv. The EMD will be returned to unsuccessful tenderer only after the tenders are finalized. In case of successful tenderer, Performance Guarantee will be retained till the installation and completion of warranty period.
J	**Marking on Technical Bid**	**:**	i. The technical Specification for this tender is given in **Annexure A.** The tenderer shall go through the specification and submit the technical bid. ii. The Technical bid should be submitted in the proforma given as per **Annexure B in pdf format only through online (e-tender). No manual submission of bid is entertained.** iii. All technical bid should have the page-wise **heading as "Technical Bid" and page no.** in all pages with seal and signature of authorized signatory. The total no. of pages should be mentioned at the last page of the documents. iv. The technical bid should consist of all technical details along with catalogue/brochure and other technical, commercial terms and conditions.
K	**Marking on Price Bid**	**:**	**i.** Price bid should be submitted in the prescribed proforma **Annexure – C as per BOQ in Excel** format through e-tender only. **No manual submission of bid is entertained.** ii. Price bid should indicate item-wise price for all the items mentioned in the technical bid. iii. Total value in the price bid should be indicated in figures & words clearly.
2	**REQUIREMENT** IIT Madras Campus Network infrastructure is fully on Cisco and HPE products. Hence the required items should have compatibility and interoperability with the existing network environment.		
3	**VENDOR ELIGIBILITY CRITERIA** 1. The Bidders must be Platinum / Gold / silver / Premier Certified Partners of OEM and the certificate issued by the OEM in this regard should be enclosed. 2. Should have office at Chennai with experts / specialists to handle all types of Network switches for Installation and Configuration.(*Certificate to be submitted in this regard in Form – I)* 3. MAF – Manufacturer Authorization Form to be attached for this tender from OEM.		
4	**Preparation of Tender:** a) You should quote your product as per our specification requirements by mentioning our requirements and your offer side by side and the rate should be in total as per our requirements. We will not make any calculation if you have mentioned the rates of items separately. b) The offer/bids should be submitted through online only in two bid system i.e. Technical Bid and Price Bid separately.		

5	**Signing of Tender:** The Tender is liable to be rejected if complete information is not given therein or if the particulars and date (if any) asked for in the schedule to the Tender are not fully filled in or not duly signed/authenticated. Specific attention is drawn to the delivery dates and terms and conditions enclosed herewith. **Each page of the technical bid required to be signed and bears the official seal of the tenderers.** If the application is made by a firm in partnership, it shall be signed (with seal)by all the partners of the firm above their full typewritten names and current addresses or alternatively by a partner holding power of attorney for the firm in which case a certified copy of the power of attorney shall accompany the application. A certified copy of the partnership deed along with current addresses of all the partners of the firm shall also accompany the application. If a limited company or a corporation makes the application, it shall be signed by a duly authorized person holding power of attorney for signing the application, in which case a certified copy of the power of attorney shall accompany the application. Such limited company or corporation may be required to furnish satisfactory evidence of its existence. The applicant shall also furnish a copy of the Memorandum of Articles of association duly attested by a Public notary.
6	**Period for which the offer will remain open:** i. Firms tendering should note the period for which it is desired that their offers should remain open for acceptance. If the firms are unable to keep their offers open for the specified period they should specifically state the period for which their offers are being provided, however, the day up to which the offer is to remain open being declared closed holiday for the Indian Institute of Technology Madras, the offer shall remain open for acceptance till the next working day. ii. Quotations qualified by such vague and indefinite expressions such as 'subject to immediate acceptance', 'subject to prior sale' will not be considered. iii. The Tender shall remain open for acceptance/validity till: **120 days from the date of opening of the tender**
7	**Prices:** **i.** The prices quoted must be nett. per unit as per the technical specification mentioned in **Annexure B** and must include all Packing & Forwarding and other charges, etc.. **The prices quoted by the Tenderer should be inclusive of GST and other statutory levies** (and should be clearly stated to be so) which will be paid by the Purchaser/if legally leviable at the rate ruling on the date of supply as specified in the Acceptance of Tender. **The percentage of tax etc. included in the price should be indicated in clear terms**. **If the inclusive price is not given, we will treat your offered rate as inclusive rate and comparison be made with others.** If at the time of comparison of your offer without taxes etc. is happen to be lowest, you are bound to supply as per the offered rate, i.e. without taxes etc. **ii. Concessional GST :** IIT Madras is eligible for concessional GST @ 5% on IGST and @ 2.5% for CGST and SGST as per Notification No. 45/2017 – Central Tax (Rate) Dated 14th November 2017 & Notification No.47/2017 – Integrated Tax (Rate) Dated 14th November 2017, for procurement of Equipments and Consumables for research purpose. At the time of Invoicing, please state the concessional GST accordingly. During the supply of item, a certificate to this effect will be issued to your firm. **iii.** Hence you are requested to be careful while quoting for tender. **The price should be without customs duty since IIT Madras is eligible for payment of concessional customs duty against submission of Essentiality Certificate. The customs duty will be payable / reimbursable by us at the time of clearance on production of necessary proof. Hence these duties need not be included in the price while quoting**. Necessary document will be provided at appropriate time. **No price revision, changes in the specification already given or changes in the terms and conditions etc. during the rate contract period is acceptable**. **iv.** Discount, if any, should be indicated prominently, in the technical bid in percentage. The % of discount offered may also be indicated in the following slabs. (i) 6 to 10 Nos. (ii) 11 to 20 Nos. (iv) above 20 Nos.
8	**Evaluation of Bid and Award of Contract:** **Bid I: Technical Bid** The online technical bid will be first opened and evaluated. In the screening, the ***Vendor Eligibility Criteria and technical bid*** as per **ANNEXURE – B** will be evaluated. Technical selection will be done on item wise technical evaluation.

	Bid II: Price Bid The Price bid of only those bidders who have fully complied the vendor eligibility criteria and all the technical bid points for each item will be considered for final selection. Item wise L1 will be arrived and counter offering will be made to all technically qualified vendors to match the L1 price. The technically qualified vendors who accept to match the L1 price alone will be empanelled. More than one vendor may be empanelled for this rate contract.
9	**Payment: No Advance Payment will be made for Indigenous purchase.** Payment will be made only after supply and satisfactory installation.
10	**Terms and conditions :** Failure to comply with any of the instructions stated in this document or offering unsatisfactory explanations for non-compliance will likely to lead to rejection of offers.
11	**Right of Acceptance:** IIT MADRAS reserves the right to reject the whole or any part of the Tender without assigning any reason or to accept them in part or full.
12	**Communication of Acceptance:** Acceptance by the Purchaser will be communicated by Post, if required, and the Company's acceptance communicated to us formally in writing.
13	**Warranty:** Warranty should be 1 year.
14	**Delivery:** The items should be delivered to Departments / Sections / Centers of IITM, Chennai-36 as indicated in the Purchase Order **Delivery Period:** The Items should be delivered within4-6 weeks of issue of Purchase Order. Please indicate the actual delivery period clearly. No further extension of time will be allowed. **Non delivery of items** will lead to cancellation of rate contract empanelment without any notice.
15	**Transit Insurance:** The Purchaser will not pay separately for Transit Insurance.
16	In terms of Rule 173 (iv) of General Financial Rules, 2017 the bidder shall be at liberty to question the bidding conditions, bidding process and/or rejection of its bid.
17	**Conditions of contract:** Tenderer should quote on the basis of the conditions referred to in Para of the invitation to tender and tender papers. In case these terms and conditions are not acceptable to the tenderer, he should specifically state the deviation(s) there from in the body of the tender.
18	**Tenderer shall submit along with his Tender:** Name and full address of the Banker and their swift code and PAN No. and GSTIN number.
19	**Guarantee:** The tenderer has to declare that the goods sold to the buyer under this contract shall be of the best quality and workmanship and shall be strictly in accordance with the specifications. Tenderer should indicate the period for which the said goods/articles would continue to confirm to the specifications.
20	**Jurisdiction:** All questions, disputes, or differences arising under, out of or in connection with the contract, if concluded, shall be subject to the exclusive jurisdiction at the place from which the acceptance of Tender is issued.
21	**Force Majeure:** The Supplier shall not be liable for forfeiture of its performance security, liquidated damages or termination for default, if and to the extent that, it's delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure. • For purposes of this Clause, "Force Majeure" means an event beyond the control of the Supplier and not involving the Supplier's fault or negligence and not foreseeable. Such events may include, but are not limited to, acts of the Purchaser either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes. • If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such conditions and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.
22	**Risk Purchase Clause:** In event of failure of supply of the item/equipment within the stipulated delivery schedule, the purchaser has all the right to purchase the item/equipment from the other source on the total risk of the supplier under risk purchase clause

23	**<u>For Technical Related Queries Contact :</u>** **Mr. V. Selvaraju,B.E.,M.E.,** **Assistant Systems Engineer** **Computer Centre** **IIT Madras** **Chennai – 600 036.** **Phone No: 044- 2257 4988**

Yours faithfully

sd/-
Deputy Registrar
(Stores & Purchase Section)

ACKNOWLEDGEMENT

It is hereby acknowledged that I/We have gone through all the points listed under "Specification, Guidelines, Terms and Conditions" of tender document. I/We totally understand the terms and conditions and agree to abide by the same.

SIGNATURE OF TENDERER ALONG WITH SEAL OF THE COMPANY WITH DATE

Form -I

CERTIFICATION

This is to certify that I/We/M/s _____ have registered office in Chennai in the following location and I/We/ M/s _____ hereby state that I/We have experts / specialists to handle all type of Network Switches for installation and configuration as per the tender equipment called for in tender No. IITM/SPS/CC/RC/NETWORK MANAGED SWITCHES/ 009/2019-2020, dated 17.08.2019.

SIGNATURE OF TENDERER ALONG WITH SEAL OF THE COMPANY WITH DATE

NETWORK MANAGED SWITCHES SPECIFICATIONS

(a) REQUIREMENT

IIT Madras Campus Network infrastructure is fully on Cisco and HPE products. Hence the required items should have compatibility and interoperability with the existing network environment.

(b) VENDOR ELIGIBILITY CRITERIA

4. The Bidders must be Platinum / Gold / silver / Premier Certified Partners of OEM and the certificate issued by the OEM in this regard should be enclosed.
5. Should have office at Chennai with experts / specialists to handle all types of Network switches for Installation and Configuration.(*Certificate to be submitted in this regard in Form – I)*
6. MAF – Manufacturer Authorization Form to be attached for this tender from OEM.

ITEM 1. TECHNICAL SPECIFICATION FOR 8 PORT POE SWITCH

1. The supplied product OEM should be in Gartner Magic Leader quadrant for past consecutive three years
2. The switch should support 8 ports POE+ up to 65W power supply
3. The switch should support 8 nos. of 10/100/1000 Ethernet Ports with 2 x 1G SFP / 2 x 1G UTP
4. The switch must support 12 Gbps of Forwarding bandwidth with 4K Vlan ID's and 17 Mpps of Forwarding capacity and support for 24 Gbps of Switching bandwidth
5. The switch should support for MAC-based VLAN assignment which enables users to authenticate on different VLANs
6. Should support for 802.1X Features which control access to the network, including Flexible Authentication, IEEE 802.1x, RADIUS Change of Authorization
7. The switch should support Spanning-Tree such as IEEE 802.1D STP, 802.1s MSTP and Link Aggregation Control Protocol 802.3ad
8. Must support identifying the physical path that a packet takes from source to destination
9. Support for IPv6 First-Hop Security to enhance Layer-2 and Layer-3 network access
10. The switch should have IPV4 and IPv6 First-Hop Security to protects against address spoofing, rogue router advertisements, fake DHCP replies.
11. Switch must support Port Security, Dynamic ARP Inspection and IP Source Guard
12. Must support Private VLAN to ensure that users cannot snoop on other users traffic
13. Support for security policies on switch interfaces for control- plane and data-plane traffic with Unicast Reverse Path Forwarding support / IP DHCP Spoofing & DAI
14. The switch should support Multilevel security on console access to prevents unauthorized users from altering the switch configuration
15. Support for STRG and BPDU Guard with IGMP filtering
16. Must have feature to automatically attempts to reactivate a link that is disabled because of a network error to reduce the admin time
17. Support for eight hardware queues per port and strict priority queuing with SRR and WTD QOS Support
18. Must support rate limiting from day 1
19. Must support 16000 MAC with 500 IGMP Group support
20. Must have 256 MB DRAM and 128 MB Flash
21. The switch should support Port-based access control list (ACL)
22. Must have Operating temperature of 0°C to +45°C from day 1

ITEM 2. Technical Specification for 8 Port Non-POE Switch

1. The supplied product OEM should be in Gartner Magic Leader quadrant for past consecutive three years.
2. The switch should support 8 nos. of 10/100/1000 Ethernet Ports with 2 x 1G SFP / 2 x 1G UTP
3. The switch must support 12 Gbps of Forwarding bandwidth with 4K Vlan ID's and 17 Mpps of Forwarding capacity and support for 24 Gbps of Switching bandwidth
4. The switch should support for MAC-based VLAN assignment which enables users to authenticate on different VLANs
5. Should support for 802.1X Features which control access to the network, including Flexible Authentication, IEEE 802.1x, RADIUS Change of Authorization
6. The switch should support Spanning-Tree such as IEEE 802.1D STP, 802.1s MSTP and Link Aggregation Control Protocol 802.3ad
7. Must support identifying the physical path that a packet takes from source to destination
8. Support for IPv6 First-Hop Security to enhance Layer-2 and Layer-3 network access
9. The switch should have IPV4 and IPv6 First-Hop Security to protects against address spoofing, rogue router advertisements, fake DHCP replies.
10. Switch must support Port Security, Dynamic ARP Inspection and IP Source Guard
11. Must support Private VLAN to ensure that users cannot snoop on other users traffic
12. Support for security policies on switch interfaces for control- plane and data-plane traffic with Unicast Reverse Path Forwarding support / IP DHCP Spoofing & DAI
13. The switch should support Multilevel security on console access to prevents unauthorized users from altering the switch configuration
14. Support for STRG and BPDU Guard with IGMP filtering
15. Must have feature to automatically attempts to reactivate a link that is disabled because of a network error to reduce the admin time
16. Support for eight hardware queues per port and strict priority queuing with SRR and WTD QOS Support
17. Must support rate limiting from day 1
18. Must support 16000 MAC with 500 IGMP Group support
19. Must have 256 MB DRAM and 128 MB Flash
20. The switch should support Port-based access control list (ACL)
21. Must have Operating temperature of 0°C to +45°C from day 1

ITEM 3. Technical Specification for 24 port Fiber Input Switch

1. The supplied product OEM should be in Gartner Magic Leader quadrant for past consecutive three years
2. The Proposed Switch should have the following Ports : 22 ports of 10Gbps SFP+. All the 24 ports should support SR and LR as per the solution requirement.
3. Uplink 2 x 10 Gbps, SFP+ should support for SR and LR as per the solution requirement.
4. The proposed switch must have dual power supply
5. Proposed switch must support 280 Mpps with 480 Gbps of Switching Capacity
6. Must support 32000 MAC ID from day 1
7. Must support 10000 IPV4 Routes on Layer 3
8. Switch must support Sflow / Netflow
9. The Proposed Switch should have 2GB of DRAM with 1 GB Flash
10. Must support 4 K Vlan id's
11. support for 9198 Jumbo frame
12. Support for MACSEC 256-bit from day 1

13. Must support IEEE 802.1ba voice and video QOS on LAN bridging. Automated network / dynamic segmentation and group-based / role based policy
14. Switch must support IP unicast routing protocols (static, Routing Information Protocol Version 1 [RIPv1], and RIPv2, RIPng, with Equal-cost routing facilitates Layer 3 load balancing
15. Switch must support Advanced IP unicast routing protocols (Open Shortest Path First [OSPF] / Intermediate System-to-Intermediate System Version 4 [IS-ISv4]) and Border Gateway Protocol Version 4 [BGPv4]
16. Switch must support IPv6 routing (OSPFv3) / IS-ISv4 and BGPv4
17. Support for Protocol-Independent Multicast (PIM) for IP multicast routing, including PIM Sparse Mode (PIM-SM) and PIM Dense Mode (PIM-DM), PIM sparse-dense mode.
18. The Proposed Switch should support for GUI-based device-management tool that provides the ability to provision the device, to simplify device deployment and manageability
19. Switch must support function provides bandwidth rate limiting
20. Must support Weighted Tail Drop (WTD) provides congestion avoidance at the ingress and egress queues before a disruption occurs
21. Switch must support for Strict priority queuing helps ensure that the highest priority packets are serviced ahead of all other traffic
22. Support / facilitate for Application visibility and control
23. Support for UL 60950-1, CAN/CSA-C22.2 No. 60950-1, EN 60950-1, IEC 60950-1, CCC / FCC, CE Marking compliance
24. The proposed Switch must support ROHS 5
25. Must support operating Temperature of 0ºC to +45ºC
26. The proposed Solution should have all the modules from the same Vendor.

ITEM 4. Technical Specification for 24 port POE Switch

1. The supplied product OEM should be in Gartner Magic Leader quadrant for past consecutive three years.
2. The Proposed Switch should have the following Ports : 24 ports Gigabit with 15.4W power, total POE power 370 W . Uplink 2 x 1 / 10 Gig SFP / SFP+ based ports should support LR and SR as per the solution requirement.
3. The proposed switch must support 80+ platinum rated power supply or Energy-efficient Ethernet (EEE) IEEE 802.3az
4. The Proposed Switch should support the following protocols : LISP(RFC 6830) / VXLAN(RFC 7348)
5. The Proposed Switch should have 1GB of DRAM with 4 GB Flash
6. The Proposed Switch should support 4K VLAN IDs
7. The Proposed Switch should support a modern operating system with support for model-driven programmability using REST API and Open flow
8. The Proposed Switch should have 128Gbps and 90 Mpps of Forwarding rates
9. The Proposed Switch should support atleast 32000 MAC Addresses with 9000 bytes of Jumbo frames
10. The Proposed Switch should support basic IP Unicast routing protocols (static, RIPv1 & RIPv2) should be supported.
11. The Proposed Switch should be able to discover (on both IPv4 & IPv6 Network) the neighboring device giving the details about the platform, IP Address, Link connected through etc, thus helping in troubleshooting connectivity problems.
12. The Proposed Switch should support in case of active switch fails, the standby switch must keep the role of the active switch and continues to keep the stack operational
13. The Proposed Switch should support RIP, PVLAN, VRRP, PBR, QoS, FHS, 802.1X
14. The Proposed Switch should support for GUI-based device-management tool that provides the ability to provision the device, to simplify device deployment and manageability
15. The Proposed Switch should support Unicast Reverse Path Forwarding (RPF) feature to mitigate problems caused by the introduction of malformed or forged (spoofed) IP source addresses into a network by discarding IP packets that lack a verifiable IP source address.

16. The Proposed Switch should support Multidomain authentication to allow an IP phone and a PC to authenticate on the same switch port while placing them on appropriate voice and data VLAN.
17. The Proposed Switch should support SPAN, RSPAN
18. The Proposed Switch should support TACACS and RADIUS authentication to facilitate centralized control of the switch and restricts unauthorized users from altering the configuration.
19. The Proposed Switch should support Multilevel security on console access to prevent unauthorized users from altering the switch configuration.
20. The Proposed Switch should support Bridge protocol data unit (BPDU) Guard to shut down Spanning Tree PortFast-enabled interfaces when BPDUs are received to avoid accidental topology loops.
21. The Proposed Switch should be capable of Queuing, Policing, Shaping and marking Wired and Wireless Traffic based on Class of Service (CoS) or DSCP.
22. The Proposed Switch should support Shaped round robin (SRR) scheduling to ensure differential prioritization of packet flows by intelligently servicing the ingress queues and egress queues
23. The Proposed Switch should support eight Hardware queues per port
24. The Proposed Switch should support Sflow / NetFlow
25. The Proposed Switch should support / facilitate application visibility and control based on Top Talkers, Top Destination, Top Protocols etc.
26. The Proposed switch must have support for Protocol-Independent Multicast (PIM) for IP multicast routing is supported, including PIM sparse mode (PIM SM)
27. The Proposed switch must have support for MSDP / Equivalent
28. The Proposed switch must have support for 6 MB buffer
29. The Proposed switch must have support for sflow or Equivalent entries
30. The Proposed Switch should be capable of monitoring Wireless Flows / traffic from directly connected AP's
31. The Proposed Switch should be capable of monitoring network traffic on Physical, VLAN & WLAN.
32. Support for IEEE 802.1s; IEEE 802.1w; IEEE 802.1x; ; IEEE 802.3ad; IEEE 802.3af; IEEE 802.3at; IEEE 802.1D; IEEE 802.1p; and IEEE 802.1Q VLAN
33. Support for RMON I standards SNMPv1, v2c, and v3
34. Support for FCC Part 15 (CFR 47); Class A ICES-003; Class A EN 55032; Class A CISPR 32;
35. Support for UL 60950-1, CAN/CSA-C22.2 No. 60950-1, EN 60950-1, IEC 60950-1 on Safety compliance
36. The proposed Switch must support ROHS
37. Must support operating Temperature of 0ºC to +45ºC
38. The proposed Solution should have all the modules from the same Vendor.

ITEM 5. Technical specification for 24 port NON-POE switch

1. The supplied product OEM should be in Gartner Magic Leader quadrant for past consecutive three years
2. The Proposed Switch should have the following Ports : 24 ports Gigabit, Uplink 2 x 1 / 10 Gig SFP / SFP+ based ports should support LR and SR as per the solution requirement.
3. The proposed switch must support 80+ platinum rated power supply or - Energy-efficient Ethernet (EEE) IEEE 802.3az
4. The Proposed Switch should support the following protocols : LISP(RFC 6830) or VXLAN(RFC 7348)
5. The Proposed Switch should have 1GB of DRAM with 4 GB Flash
6. The Proposed Switch should support 4K VLAN IDs
7. The Proposed Switch should support a modern operating system with support for model-driven programmability using REST API and Open flow
8. The Proposed Switch should support VxLAN as a data transport overlay
9. The Proposed Switch should have 128Gbps and 90 Mpps of Forwarding rates
10. The Proposed Switch should support atleast 32000 MAC Addresses with 9000 bytes of Jumbo frames

11. The Proposed Switch should support basic IP Unicast routing protocols (static, RIPv1 & RIPv2) should be supported.
12. The Proposed Switch should be able to discover (on both IPv4 & IPv6 Network) the neighboring device giving the details about the platform, IP Address, Link connected through etc, thus helping in troubleshooting connectivity problems..
13. The Proposed Switch should support incase of active switch fails, the standby switch must keep the role of the active switch and continues to keep the stack operational
14. The Proposed Switch should support RIP, PVLAN, VRRP, PBR, QoS, FHS, 802.1X
15. The Proposed Switch should support for GUI-based device-management tool that provides the ability to provision the device, to simplify device deployment and manageability
16. The Proposed Switch should support Unicast Reverse Path Forwarding (RPF) feature to mitigate problems caused by the introduction of malformed or forged (spoofed) IP source addresses into a network by discarding IP packets that lack a verifiable IP source address.
17. The Proposed Switch should support Multidomain authentication to allow an IP phone and a PC to authenticate on the same switch port while placing them on appropriate voice and data VLAN.
18. The Proposed Switch should support SPAN, RSPAN
19. The Proposed Switch should support TACACS and RADIUS authentication to facilitate centralized control of the switch and restricts unauthorized users from altering the configuration.
20. The Proposed Switch should support Multilevel security on console access to prevent unauthorized users from altering the switch configuration.
21. The Proposed Switch should support Bridge protocol data unit (BPDU) Guard to shut down Spanning Tree PortFast-enabled interfaces when BPDUs are received to avoid accidental topology loops.
22. The Proposed Switch should be capable of Queuing, Policing, Shaping and marking Wired and Wireless Traffic based on Class of Service (CoS) or DSCP.
23. The Proposed Switch should support Shaped round robin (SRR) scheduling to ensure differential prioritization of packet flows by intelligently servicing the ingress queues and egress queues
24. The Proposed Switch should support eight egress / hardware queues per port
25. The Proposed Switch should support Sflow / NetFlow
26. The Proposed Switch should support / facilitate application visibility and control based on Top Talkers, Top Destination, Top Protocols etc.
27. The Proposed switch must have support for Protocol-Independent Multicast (PIM) for IP multicast routing is supported, including PIM sparse mode (PIM SM)
28. The Proposed switch must have support for MSDP / Equivalent
29. The Proposed switch must have support for 6 MB buffer
30. The Proposed switch must have support for sflow or Equivalent entries
31. The Proposed Switch should be capable of monitoring Wireless Flows / traffic from directly connected AP's
32. The Proposed Switch should be capable of monitoring network traffic on Physical, VLAN & WLAN.
33. Support for IEEE 802.1s; IEEE 802.1w; IEEE 802.1x; ; IEEE 802.3ad; IEEE 802.3af; IEEE 802.3at; IEEE 802.1D; IEEE 802.1p; and IEEE 802.1Q VLAN and
34. Support for RMON I standards SNMPv1, v2c, and v3
35. Support for FCC Part 15 (CFR 47); Class A ICES-003; Class A EN 55032; Class A CISPR 32;
36. Support for UL 60950-1, CAN/CSA-C22.2 No. 60950-1, EN 60950-1, IEC 60950-1 on Safety compliance
37. The proposed Switch must support ROHS
38. Must support operating Temperature of 0ºC to +45ºC
39. The proposed Solution should have all the modules from the same Vendor.

ITEM 6. Technical specification for 48 port Fiber Input switch

1. The supplied product OEM should be in Gartner Magic Leader quadrant for past consecutive three years.
2. The Proposed Switch should have the following Ports : 48 ports of 10G SFP+. All the 48 ports should support SR and LR as per the solution requirement.
3. Uplink 2 x 40 Gbps, QSFP+ should support for SR and LR for future requirement.
4. The proposed switch must have dual power supply
5. Proposed switch must support 900 Mpps with 1.2 Tbps of Switching Capacity
6. Must support 32000 MAC ID from day 1
7. Must support 32000 IPV4 Routes on Layer 3
8. Switch must support Sflow / Netflow entries
9. The Proposed Switch should have 4GB of DRAM with 1 GB Flash upgradable to 4 GB externally
10. Must support 4 K Vlan id's
11. support for 9198 Jumbo frame
12. Must support IEEE 802.1ba voice and video QOS on LAN bridging. Automated network / dynamic segmentation and group-based / role based policy
13. Switch must support IP unicast routing protocols (static, Routing Information Protocol Version 1 [RIPv1], and RIPv2, RIPng, with Equal-cost routing facilitates Layer 3 load balancing
14. Switch must support Advanced IP unicast routing protocols (Open Shortest Path First [OSPF] / Intermediate System-to-Intermediate System Version 4 [IS-ISv4]) and Border Gateway Protocol Version 4 [BGPv4]
15. Switch must support IPv6 routing (OSPFv3) / IS-ISv4 and BGPv4
16. Support for Protocol-Independent Multicast (PIM) for IP multicast routing, including PIM Sparse Mode (PIM-SM) and PIM Dense Mode (PIM-DM), PIM sparse-dense mode.
17. The Proposed Switch should support for GUI-based device-management tool that provides the ability to provision the device, to simplify device deployment and manageability
18. Switch must support function provides bandwidth rate limiting
19. Must support Weighted Tail Drop (WTD) provides congestion avoidance at the ingress and egress queues before a disruption occurs
20. Switch must support for Strict priority queuing helps ensure that the highest priority packets are serviced ahead of all other traffic
21. Support for Application visibility and control
22. Support for UL 60950-1, CAN/CSA-C22.2 No. 60950-1, EN 60950-1, IEC 60950-1, CCC / FCC, CE Marking compliance
23. The proposed Switch must support ROHS 5
24. Must support operating Temperature of 0ºC to +45ºC
25. The proposed Solution should have all the modules from the same Vendor.

ITEM 7. Technical Specification for 48 port POE switch

1. The supplied product OEM should be in Gartner Magic Leader quadrant for past consecutive three years.
2. The Proposed Switch should have the following Ports : 48 ports Gigabit with 15.4W power, total POE power 740 W. Uplink 2 x 1 / 10 Gig SFP / SFP+ based ports should support LR and SR as per the solution requirement.
3. The proposed switch must support 80+ platinum rated power supply or - Energy-efficient Ethernet (EEE) IEEE 802.3az
4. The Proposed Switch should support the following protocols : LISP(RFC 6830) / VXLAN(RFC 7348)
5. The Proposed Switch should have 1GB of DRAM with 4 GB Flash
6. The Proposed Switch should support 4K VLAN IDs

7. The Proposed Switch should support a modern operating system with support for model-driven programmability using REST API and Open flow
8. The Proposed Switch should support VxLAN as a data transport overlay
9. The Proposed Switch should have 176 Gbps and 110 Mpps of Forwarding rates
10. The Proposed Switch should support atleast 32000 MAC Addresses with 9000 bytes of Jumbo frames
11. The Proposed Switch should support basic IP Unicast routing protocols (static, RIPv1 & RIPv2) should be supported.
12. The Proposed Switch should be able to discover (on both IPv4 & IPv6 Network) the neighboring device giving the details about the platform, IP Address, Link connected through etc, thus helping in troubleshooting connectivity problems..
13. The Proposed Switch should support in case of active switch fails, the standby switch must keep the role of the active switch and continues to keep the stack operational
14. The Proposed Switch should support RIP, PVLAN, VRRP, PBR, QoS, FHS, 802.1X
15. The Proposed Switch should support for GUI-based device-management tool that provides the ability to provision the device, to simplify device deployment and manageability
16. The Proposed Switch should support Unicast Reverse Path Forwarding (RPF) feature to mitigate problems caused by the introduction of malformed or forged (spoofed) IP source addresses into a network by discarding IP packets that lack a verifiable IP source address.
17. The Proposed Switch should support Multi-domain authentication to allow an IP phone and a PC to authenticate on the same switch port while placing them on appropriate voice and data VLAN.
18. The Proposed Switch should support SPAN, RSPAN
19. The Proposed Switch should support TACACS and RADIUS authentication to facilitate centralized control of the switch and restricts unauthorized users from altering the configuration.
20. The Proposed Switch should support Multilevel security on console access to prevent unauthorized users from altering the switch configuration.
21. The Proposed Switch should support Bridge protocol data unit (BPDU) Guard to shut down Spanning Tree PortFast-enabled interfaces when BPDUs are received to avoid accidental topology loops.
22. The Proposed Switch should be capable of Queuing, Policing, Shaping and marking Wired and Wireless Traffic based on Class of Service (CoS) or DSCP.
23. The Proposed Switch should support Shaped round robin (SRR) scheduling to ensure differential prioritization of packet flows by intelligently servicing the ingress queues and egress queues
24. The Proposed Switch should support eight egress / hardware queues per port
25. The Proposed Switch should support Sflow / NetFlow
26. The Proposed Switch should support / facilitate application visibility and control based on Top Talkers, Top Destination, Top Protocols etc.
27. The Proposed switch must have support for Protocol-Independent Multicast (PIM) for IP multicast routing is supported, including PIM sparse mode (PIM SM)
28. The Proposed switch must have support for MSDP/Equivalent
29. The Proposed switch must have support for 6 MB buffer
30. The Proposed switch must have support for sflow or Equivalent
31. The Proposed Switch should be capable of monitoring Wireless Flows / traffic from directly connected AP's
32. The Proposed Switch should be capable of monitoring network traffic on Physical, VLAN & WLAN.
33. Support for IEEE 802.1s; IEEE 802.1w; IEEE 802.1x; ; IEEE 802.3ad; IEEE 802.3af; IEEE 802.3at; IEEE 802.1D; IEEE 802.1p; and IEEE 802.1Q VLAN and
34. Support for RMON I standards SNMPv1, v2c, and v3
35. Support for FCC Part 15 (CFR 47); Class A ICES-003; Class A EN 55032; Class A CISPR 32;
36. Support for UL 60950-1, CAN/CSA-C22.2 No. 60950-1, EN 60950-1, IEC 60950-1 on Safety compliance
37. The proposed Switch must support ROHS

38. Must support operating Temperature of 0ºC to +45ºC
39. The proposed Solution should have all the modules from the same Vendor.

ITEM 8. Technical Specification for 48 port NON-POE switch

1. The supplied product OEM should be in Gartner Magic Leader quadrant for past consecutive three years.
2. The Proposed Switch should have the following Ports : 48 ports Gigabit. Uplink 2 x 1 / 10 Gig SFP / SFP+ based ports should support LR and SR as per the solution requirement.
3. The proposed switch must support 80+ platinum rated power supply or - Energy-efficient Ethernet (EEE) IEEE 802.3az
4. The Proposed Switch should support the following protocols : LISP(RFC 6830) / VXLAN(RFC 7348)
5. The Proposed Switch should have 1 GB of DRAM with 4 GB Flash
6. The Proposed Switch should support 4K VLAN IDs
7. The Proposed Switch should support a modern operating system with support for model-driven programmability using REST API and Open flow
8. The Proposed Switch should support VxLAN as a data transport overlay
9. The Proposed Switch should have 176 Gbps and 110 Mpps of Forwarding rates
10. The Proposed Switch should support atleast 32000 MAC Addresses with 9000 bytes of Jumbo frames
11. The Proposed Switch should support basic IP Unicast routing protocols (static, RIPv1 & RIPv2) should be supported.
12. The Proposed Switch should be able to discover (on both IPv4 & IPv6 Network) the neighboring device giving the details about the platform, IP Address, Link connected through etc, thus helping in troubleshooting connectivity problems..
13. The Proposed Switch should support incase of active switch fails, the standby switch must keep the role of the active switch and continues to keep the stack operational
14. The Proposed Switch should support RIP, PVLAN, VRRP, PBR, QoS, FHS, 802.1X
15. The Proposed Switch should support for GUI-based device-management tool that provides the ability to provision the device, to simplify device deployment and manageability
16. The Proposed Switch should support Unicast Reverse Path Forwarding (RPF) feature to mitigate problems caused by the introduction of malformed or forged (spoofed) IP source addresses into a network by discarding IP packets that lack a verifiable IP source address.
17. The Proposed Switch should support Multidomain authentication to allow an IP phone and a PC to authenticate on the same switch port while placing them on appropriate voice and data VLAN.
18. The Proposed Switch should support SPAN, RSPAN
19. The Proposed Switch should support TACACS and RADIUS authentication to facilitate centralized control of the switch and restricts unauthorized users from altering the configuration.
20. The Proposed Switch should support Multilevel security on console access to prevent unauthorized users from altering the switch configuration.
21. The Proposed Switch should support Bridge protocol data unit (BPDU) Guard to shut down Spanning Tree Port Fast-enabled interfaces when BPDUs are received to avoid accidental topology loops.
22. The Proposed Switch should be capable of Queuing, Policing, Shaping and marking Wired and Wireless Traffic based on Class of Service (CoS) or DSCP.
23. The Proposed Switch should support Shaped round robin (SRR) scheduling to ensure differential prioritization of packet flows by intelligently servicing the ingress queues and egress queues
24. The Proposed Switch should support eight egress / hardware queues per port
25. The Proposed Switch should support Sflow / NetFlow
26. The Proposed Switch should support / facilitate application visibility and control based on Top Talkers, Top Destination, Top Protocols etc.
27. The Proposed switch must have support for Protocol-Independent Multicast (PIM) for IP multicast routing is supported, including PIM sparse mode (PIM SM)

28. The Proposed switch must have support for MSDP / Equvalent
29. The Proposed switch must have support for 6 MB buffer
30. The Proposed switch must have support for sflow or Equivalent
31. The Proposed Switch should be capable of monitoring Wireless Flows / traffic from directly connected AP's
32. The Proposed Switch should be capable of monitoring network traffic on Physical, VLAN & WLAN.
33. Support for IEEE 802.1s; IEEE 802.1w; IEEE 802.1x; ; IEEE 802.3ad; IEEE 802.3af; IEEE 802.3at; IEEE 802.1D; IEEE 802.1p; and IEEE 802.1Q VLAN and
34. Support for RMON I standards SNMPv1, v2c, and v3
35. Support for FCC Part 15 (CFR 47); Class A ICES-003; Class A EN 55032; Class A CISPR 32;
36. Support for UL 60950-1, CAN/CSA-C22.2 No. 60950-1, EN 60950-1, IEC 60950-1 on Safety compliance
37. The proposed Switch must support ROHS
38. Must support operating Temperature of 0ºC to +45ºC
39. The proposed Solution should have all the modules from the same Vendor.

ITEM 9. Technical Specification for Fiber Transceiver Modules

1. The supplied product OEM should be in Gartner Magic Leader quadrant for past consecutive three years.
2. 1 Gbps SFP, Short Range, Multi mode fiber support
3. 10 Gbps SFP+, Short Range, Multi mode fiber support
4. 1 Gbps SFP, Long Range, Single mode fiber support
5. 10 Gbps SFP+, Long Range, Single mode fiber support
6. 1 Gbps RJ45 Transceiver

TECHNICAL BID

(a) REQUIREMENT	Compliance (Yes/ No)	Proof with Page No.
IIT Madras Campus Network infrastructure is fully on Cisco and HPE products. Hence the required items should have compatibility and interoperability with the existing network environment.		

	(b) VENDOR ELIGIBILITY CRITERIA	Compliance (Yes/ No)	Proof with Page No.
1.	The Bidders must be Platinum / Gold / silver / Premier Certified Partners of OEM and the certificate issued by the OEM in this regard should be enclosed.		
2.	Should have office at Chennai with experts / specialists to handle all types of Network switches for Installation and Configuration. (*Certificate to be submitted in this regard in Form – I)*		
3.	MAF – Manufacturer Authorization Form to be attached for this tender from OEM.		

ITEM 1. TECHNICAL SPECIFICATION OF 8 PORT POE SWITCH

Switch Brand Name and Model No. of 8 port POE switch		Brand Name	Model No.
S.No.	**Description**	**Compliance (Yes/ No)**	**Proof with Page No.**
1	The supplied product OEM should be in Gartner Magic Leader quadrant for past consecutive three years		
2	The switch should support 8 ports POE+ up to 65W power supply		
3	The switch should support 8 nos. of 10/100/1000 Ethernet Ports with 2 x 1G SFP / 2 x 1G UTP		
4	The switch must support 12 Gbps of Forwarding bandwidth with 4K Vlan ID's and 17 Mpps of Forwarding capacity and support for 24 Gbps of Switching bandwidth		
5	The switch should support for MAC-based VLAN assignment which enables users to authenticate on different VLANs		
6	Should support for 802.1X Features which control access to the network, including Flexible Authentication, IEEE 802.1x, RADIUS Change of Authorization		
7	The switch should support Spanning-Tree such as IEEE 802.1D STP, 802.1s MSTP and Link Aggregation Control Protocol 802.3ad		
8	Must support identifying the physical path that a packet takes from source to destination		

9	Support for IPv6 First-Hop Security to enhance Layer-2 and Layer-3 network access		
10	The switch should have IPV4 and IPv6 First-Hop Security to protects against address spoofing, rogue router advertisements, fake DHCP replies.		
11	Switch must support Port Security, Dynamic ARP Inspection and IP Source Guard		
12	Must support Private VLAN to ensure that users cannot snoop on other users traffic		
13	Support for security policies on switch interfaces for control- plane and data-plane traffic with Unicast Reverse Path Forwarding support / IP DHCP Spoofing & DAI		
14	The switch should support Multilevel security on console access to prevents unauthorized users from altering the switch configuration		
15	Support for STRG and BPDU Guard with IGMP filtering		
16	Must have feature to automatically attempts to reactivate a link that is disabled because of a network error to reduce the admin time		
17	Support for eight hardware queues per port and strict priority queuing with SRR and WTD QOS Support		
18	Must support rate limiting from day 1		
19	Must support 16000 MAC with 500 IGMP Group support		
20	Must have 256 MB DRAM and 128 MB Flash		
21	The switch should support Port-based access control list (ACL)		
22	Must have Operating temperature of 0°C to +45°C from day 1		

ITEM 2. TECHNICAL SPECIFICATION FOR 8 PORT NON-POE SWITCH

Switch Brand Name and Model No. of 8 port Non-POE switch		**Brand Name**	**Model No.**
S.No.	**Description**	**Compliance (Yes/ No)**	**Proof with Page No.**
1	The supplied product OEM should be in Gartner Magic Leader quadrant for past consecutive three years		
2	The switch should support 8 nos. of 10/100/1000 Ethernet Ports with 2 x 1G SFP / 2 x 1G UTP		
3	The switch must support 12 Gbps of Forwarding bandwidth with 4K Vlan ID's and 17 Mpps of Forwarding capacity and support for 24 Gbps of Switching bandwidth		
4	The switch should support for MAC-based VLAN assignment which enables users to authenticate on different VLANs		
5	Should support for 802.1X Features which control access to the network, including Flexible Authentication, IEEE 802.1x, RADIUS Change of Authorization		

6	The switch should support Spanning-Tree such as IEEE 802.1D STP, 802.1s MSTP and Link Aggregation Control Protocol 802.3ad		
7	Must support identifying the physical path that a packet takes from source to destination		
8	Support for IPv6 First-Hop Security to enhance Layer-2 and Layer-3 network access		
9	The switch should have IPV4 and IPv6 First-Hop Security to protects against address spoofing, rogue router advertisements, fake DHCP replies.		
10	Switch must support Port Security, Dynamic ARP Inspection and IP Source Guard		
11	Must support Private VLAN to ensure that users cannot snoop on other users traffic		
12	Support for security policies on switch interfaces for control- plane and data-plane traffic with Unicast Reverse Path Forwarding support / IP DHCP Spoofing & DAI		
13	The switch should support Multilevel security on console access to prevents unauthorized users from altering the switch configuration		
14	Support for STRG and BPDU Guard with IGMP filtering		
15	Must have feature to automatically attempts to reactivate a link that is disabled because of a network error to reduce the admin time		
16	Support for eight hardware queues per port and strict priority queuing with SRR and WTD QOS Support		
17	Must support rate limiting from day 1		
18	Must support 16000 MAC with 500 IGMP Group support		
19	Must have 256 MB DRAM and 128 MB Flash		
20	The switch should support Port-based access control list (ACL)		
21	Must have Operating temperature of 0°C to +45°C from day 1		

ITEM 3. TECHNICAL SPECIFICATION FOR 24 PORT FIBER INPUT SWITCH

Switch Brand Name and Model No. of 24 port Fiber Input Switch		**Brand Name**	**Model No.**
S.No.	**Description**	**Compliance (Yes/ No)**	**Proof with Page No.**
1	The supplied product OEM should be in Gartner Magic Leader quadrant for past consecutive three years		
2	The Proposed Switch should have the following Ports : 22 ports of 10Gbps SFP+. All the 24 ports should support SR and LR as per the solution requirement.		
3	Uplink 2 x 10 Gbps, SFP+ should support for SR and LR as per the solution requirement.		

4	The proposed switch must have dual power supply		
5	Proposed switch must support 280 Mpps with 480 Gbps of Switching Capacity		
6	Must support 32000 MAC ID from day 1		
7	Must support 10000 IPV4 Routes on Layer 3		
8	Switch must support Sflow / Netflow		
9	The Proposed Switch should have 2GB of DRAM with 1 GB Flash		
10	Must support 4 K Vlan id's		
11	support for 9198 Jumbo frame		
12	Support for MACSEC 256-bit from day 1		
13	Must support IEEE 802.1ba voice and video QOS on LAN bridging. Automated network / dynamic segmentation and group-based / role based policy		
14	Switch must support IP unicast routing protocols (static, Routing Information Protocol Version 1 [RIPv1], and RIPv2, RIPng, with Equal-cost routing facilitates Layer 3 load balancing		
15	Switch must support Advanced IP unicast routing protocols (Open Shortest Path First [OSPF] / Intermediate System-to-Intermediate System Version 4 [IS-ISv4]) and Border Gateway Protocol Version 4 [BGPv4]		
16	Switch must support IPv6 routing (OSPFv3) / IS-ISv4 and BGPv4		
17	Support for Protocol-Independent Multicast (PIM) for IP multicast routing, including PIM Sparse Mode (PIM-SM) and PIM Dense Mode (PIM-DM), PIM sparse-dense mode.		
18	The Proposed Switch should support for GUI-based device-management tool that provides the ability to provision the device, to simplify device deployment and manageability		
19	Switch must support function provides bandwidth rate limiting		
20	Must support Weighted Tail Drop (WTD) provides congestion avoidance at the ingress and egress queues before a disruption occurs		
21	Switch must support for Strict priority queuing helps ensure that the highest priority packets are serviced ahead of all other traffic		
22	Support / facilitate for Application visibility and control		
23	Support for UL 60950-1, CAN/CSA-C22.2 No. 60950-1, EN 60950-1, IEC 60950-1, CCC / FCC, CE Marking compliance		
24	The proposed Switch must support ROHS 5		
25	Must support operating Temperature of 0ºC to +45ºC		
26	The proposed Solution should have all the modules from the same Vendor.		

ITEM 4. TECHNICAL SPECIFICATION FOR 24 PORT POE SWITCH

Switch Brand Name and Model No. of 24 port POE Switch		Brand Name	Model No.
S.No.	**Description**	**Compliance (Yes/ No)**	**Proof with Page No.**
1	The supplied product OEM should be in Gartner Magic Leader quadrant for past consecutive three years.		
2	The Proposed Switch should have the following Ports : - 24 ports Gigabit with 15.4W power, total POE power 370 W . Uplink 2 x 1 / 10 Gig SFP / SFP+ based ports should support LR and SR as per the solution requirement.		
3	The proposed switch must support 80+ platinum rated power supply or Energy-efficient Ethernet (EEE) IEEE 802.3az		
4	The Proposed Switch should support the following protocols : LISP(RFC 6830) / VXLAN(RFC 7348)		
5	The Proposed Switch should have 1GB of DRAM with 4 GB Flash		
6	The Proposed Switch should support 4K VLAN IDs		
7	The Proposed Switch should support a modern operating system with support for model-driven programmability using REST API and Open flow		
8	The Proposed Switch should have 128Gbps and 90 Mpps of Forwarding rates		
9	The Proposed Switch should support atleast 32000 MAC Addresses with 9000 bytes of Jumbo frames		
10	The Proposed Switch should support basic IP Unicast routing protocols (static, RIPv1 & RIPv2) should be supported.		
11	The Proposed Switch should be able to discover (on both IPv4 & IPv6 Network) the neighboring device giving the details about the platform, IP Address, Link connected through etc, thus helping in troubleshooting connectivity problems.		
12	The Proposed Switch should support incase of active switch fails, the standby switch must keep the role of the active switch and continues to keep the stack operational		
13	The Proposed Switch should support RIP, PVLAN, VRRP, PBR, QoS, FHS, 802.1X		
14	The Proposed Switch should support for GUI-based device-management tool that provides the ability to provision the device, to simplify device deployment and manageability		
15	The Proposed Switch should support Unicast Reverse Path Forwarding (RPF) feature to mitigate problems caused by the introduction of malformed or forged (spoofed) IP source addresses into a network by discarding IP packets that lack a verifiable IP source address.		
16	The Proposed Switch should support Multidomain authentication to allow an IP phone and a PC to authenticate on the same switch port while placing		

	them on appropriate voice and data VLAN.		
17	The Proposed Switch should support SPAN, RSPAN		
18	The Proposed Switch should support TACACS and RADIUS authentication to facilitate centralized control of the switch and restricts unauthorized users from altering the configuration.		
19	The Proposed Switch should support Multilevel security on console access to prevent unauthorized users from altering the switch configuration.		
20	The Proposed Switch should support Bridge protocol data unit (BPDU) Guard to shut down Spanning Tree PortFast-enabled interfaces when BPDUs are received to avoid accidental topology loops.		
21	The Proposed Switch should be capable of Queuing, Policing, Shaping and marking Wired and Wireless Traffic based on Class of Service (CoS) or DSCP.		
22	The Proposed Switch should support Shaped round robin (SRR) scheduling to ensure differential prioritization of packet flows by intelligently servicing the ingress queues and egress queues		
23	The Proposed Switch should support eight Hardware queues per port		
24	The Proposed Switch should support Sflow / NetFlow		
25	The Proposed Switch should support / facilitate application visibility and control based on Top Talkers, Top Destination, Top Protocols etc.		
26	The Proposed switch must have support for Protocol-Independent Multicast (PIM) for IP multicast routing is supported, including PIM sparse mode (PIM SM)		
27	The Proposed switch must have support for MSDP / Equivalent		
28	The Proposed switch must have support for 6 MB buffer		
29	The Proposed switch must have support for sflow or Equivalent entries		
30	The Proposed Switch should be capable of monitoring Wireless Flows / traffic from directly connected AP's		
31	The Proposed Switch should be capable of monitoring network traffic on Physical, VLAN & WLAN.		
32	Support for IEEE 802.1s; IEEE 802.1w; IEEE 802.1x; ; IEEE 802.3ad; IEEE 802.3af; IEEE 802.3at; IEEE 802.1D; IEEE 802.1p; and IEEE 802.1Q VLAN		
33	Support for RMON I standards SNMPv1, v2c, and v3		
34	Support for FCC Part 15 (CFR 47); Class A ICES-003; Class A EN 55032; Class A CISPR 32;		
35	Support for UL 60950-1, CAN/CSA-C22.2 No. 60950-1, EN 60950-1, IEC 60950-1 on Safety compliance		
36	The proposed Switch must support ROHS		
37	Must support operating Temperature of 0ºC to +45ºC		
38	The proposed Solution should have all the modules from the same Vendor.		

ITEM 5. TECHNICAL SPECIFICATION FOR 24 PORT NON-POE SWITCH

Switch Brand Name and Model No. of 24 port Non-POE Switch		Brand Name	Model No.
S.No.	**Description**	**Compliance (Yes/ No)**	**Proof with Page No.**
1	The supplied product OEM should be in Gartner Magic Leader quadrant for past consecutive three years		
2	The Proposed Switch should have the following Ports : 24 ports Gigabit, Uplink 2 x 1 / 10 Gig SFP / SFP+ based ports should support LR and SR as per the solution requirement.		
3	The proposed switch must support 80+ platinum rated power supply or - Energy-efficient Ethernet (EEE) IEEE 802.3az		
4	The Proposed Switch should support the following protocols : LISP(RFC 6830) or VXLAN(RFC 7348)		
5	The Proposed Switch should have 1GB of DRAM with 4 GB Flash		
6	The Proposed Switch should support 4K VLAN IDs		
7	The Proposed Switch should support a modern operating system with support for model-driven programmability using REST API and Open flow		
8	The Proposed Switch should support VxLAN as a data transport overlay		
9	The Proposed Switch should have 128Gbps and 90 Mpps of Forwarding rates		
10	The Proposed Switch should support atleast 32000 MAC Addresses with 9000 bytes of Jumbo frames		
11	The Proposed Switch should support basic IP Unicast routing protocols (static, RIPv1 & RIPv2) should be supported.		
12	The Proposed Switch should be able to discover (on both IPv4 & IPv6 Network) the neighboring device giving the details about the platform, IP Address, Link connected through etc, thus helping in troubleshooting connectivity problems..		
13	The Proposed Switch should support incase of active switch fails, the standby switch must keep the role of the active switch and continues to keep the stack operational		
14	The Proposed Switch should support RIP, PVLAN, VRRP, PBR, QoS, FHS, 802.1X		
15	The Proposed Switch should support for GUI-based device-management tool that provides the ability to provision the device, to simplify device deployment and manageability		
16	The Proposed Switch should support Unicast Reverse Path Forwarding (RPF) feature to mitigate problems caused by the introduction of malformed or forged (spoofed) IP source addresses into a network by discarding IP packets that lack a verifiable IP source address.		
17	The Proposed Switch should support Multidomain authentication to allow		

	an IP phone and a PC to authenticate on the same switch port while placing them on appropriate voice and data VLAN.		
18	The Proposed Switch should support SPAN, RSPAN		
19	The Proposed Switch should support TACACS and RADIUS authentication to facilitate centralized control of the switch and restricts unauthorized users from altering the configuration.		
20	The Proposed Switch should support Multilevel security on console access to prevent unauthorized users from altering the switch configuration.		
21	The Proposed Switch should support Bridge protocol data unit (BPDU) Guard to shut down Spanning Tree PortFast-enabled interfaces when BPDUs are received to avoid accidental topology loops.		
22	The Proposed Switch should be capable of Queuing, Policing, Shaping and marking Wired and Wireless Traffic based on Class of Service (CoS) or DSCP.		
23	The Proposed Switch should support Shaped round robin (SRR) scheduling to ensure differential prioritization of packet flows by intelligently servicing the ingress queues and egress queues		
24	The Proposed Switch should support eight egress / hardware queues per port		
25	The Proposed Switch should support Sflow / NetFlow		
26	The Proposed Switch should support / facilitate application visibility and control based on Top Talkers, Top Destination, Top Protocols etc.		
27	The Proposed switch must have support for Protocol-Independent Multicast (PIM) for IP multicast routing is supported, including PIM sparse mode (PIM SM)		
28	The Proposed switch must have support for MSDP / Equivalent		
29	The Proposed switch must have support for 6 MB buffer		
30	The Proposed switch must have support for sflow or Equivalent entries		
31	The Proposed Switch should be capable of monitoring Wireless Flows / traffic from directly connected AP's		
32	The Proposed Switch should be capable of monitoring network traffic on Physical, VLAN & WLAN.		
33	Support for IEEE 802.1s; IEEE 802.1w; IEEE 802.1x; ; IEEE 802.3ad; IEEE 802.3af; IEEE 802.3at; IEEE 802.1D; IEEE 802.1p; and IEEE 802.1Q VLAN and		
34	Support for RMON I standards SNMPv1, v2c, and v3		
35	Support for FCC Part 15 (CFR 47); Class A ICES-003; Class A EN 55032; Class A CISPR 32;		
36	Support for UL 60950-1, CAN/CSA-C22.2 No. 60950-1, EN 60950-1, IEC 60950-1 on Safety compliance		
37	The proposed Switch must support ROHS		
38	Must support operating Temperature of 0ºC to +45ºC		

39	The proposed Solution should have all the modules from the same Vendor.		

ITEM 6. TECHNICAL SPECIFICATION FOR 48 PORT FIBER INPUT SWITCH

Switch Brand Name and Model No. of 48 port FIBER INPUT Switch		**Brand Name**	**Model No.**
S.No.	**Description**	**Compliance (Yes/ No)**	**Proof with Page No.**
1	The supplied product OEM should be in Gartner Magic Leader quadrant for past consecutive three years		
2	The Proposed Switch should have the following ports : 48 ports of 10G SFP+. All the 48 ports should support SR and LR as per the solution requirement.		
3	Uplink 2 x 40 Gbps, QSFP+ should support for SR and LR for future requirement.		
4	The proposed switch must have dual power supply		
5	Proposed switch must support 900 Mpps with 1.2 Tbps of Switching Capacity		
6	Must support 32000 MAC ID from day 1		
7	Must support 32000 IPV4 Routes on Layer 3		
8	Switch must support Sflow / Netflow entries		
9	The Proposed Switch should have 4GB of DRAM with 1 GB Flash upgeadable to 4 GB externaly		
10	Must support 4 K Vlan id's		
11	support for 9198 Jumbo frame		
12	Must support IEEE 802.1ba voice and video QOS on LAN bridging. Automated network / dynamic segmentation and group-based / role based policy		
13	Switch must support IP unicast routing protocols (static, Routing Information Protocol Version 1 [RIPv1], and RIPv2, RIPng, with Equal-cost routing facilitates Layer 3 load balancing		
14	Switch must support Advanced IP unicast routing protocols (Open Shortest Path First [OSPF] / Intermediate System-to-Intermediate System Version 4 [IS-ISv4]) and Border Gateway Protocol Version 4 [BGPv4]		
15	Switch must support IPv6 routing (OSPFv3) / IS-ISv4 and BGPv4		
16	Support for Protocol-Independent Multicast (PIM) for IP multicast routing, including PIM Sparse Mode (PIM-SM) and PIM Dense Mode (PIM-DM), PIM sparse-dense mode.		
17	The Proposed Switch should support for GUI-based device-management tool that provides the ability to provision the device, to simplify device deployment and manageability		

18	Switch must support function provides bandwidth rate limiting		
19	Must support Weighted Tail Drop (WTD) provides congestion avoidance at the ingress and egress queues before a disruption occurs		
20	Switch must support for Strict priority queuing helps ensure that the highest priority packets are serviced ahead of all other traffic		
21	Support for Application visibility and control		
22	Support for UL 60950-1, CAN/CSA-C22.2 No. 60950-1, EN 60950-1, IEC 60950-1, CCC / FCC, CE Marking compliance		
23	The proposed Switch must support ROHS 5		
24	Must support operating Temperature of 0ºC to +45ºC		
25	The proposed Solution should have all the modules from the same Vendor.		

ITEM 7. TECHNICAL SPECIFICATION FOR 48 PORT POE SWITCH

Switch Brand Name and Model No. of 48 port POE Switch		**Brand Name**	**Model No.**
S.No.	**Description**	**Compliance (Yes/ No)**	**Proof with Page No.**
1	The supplied product OEM should be in Gartner Magic Leader quadrant for past consecutive three years		
2	The Proposed Switch should have the following Ports : -48 ports Gigabit with 15.4W power, total POE power 740 W. Uplink 2 x 1 / 10 Gig SFP / SFP+ based ports should support LR and SR as per the solution requirement.		
3	The proposed switch must support 80+ platinum rated power supply or -Energy-efficient Ethernet (EEE) IEEE 802.3az		
4	The Proposed Switch should support the following protocols : LISP(RFC 6830) / VXLAN(RFC 7348)		
5	The Proposed Switch should have 1GB of DRAM with 4 GB Flash		
6	The Proposed Switch should support 4K VLAN IDs		
7	The Proposed Switch should support a modern operating system with support for model-driven programmability using REST API and Open flow		
8	The Proposed Switch should support VxLAN as a data transport overlay		
9	The Proposed Switch should have 176 Gbps and 110 Mpps of Forwarding rates		
10	The Proposed Switch should support atleast 32000 MAC Addresses with 9000 bytes of Jumbo frames		
11	The Proposed Switch should support basic IP Unicast routing protocols (static, RIPv1 & RIPv2) should be supported.		
12	The Proposed Switch should be able to discover (on both IPv4 & IPv6 Network) the neighboring device giving the details about the platform, IP Address, Link connected through etc, thus helping in troubleshooting		

	connectivity problems..		
13	The Proposed Switch should support incase of active switch fails, the standby switch must keep the role of the active switch and continues to keep the stack operational		
14	The Proposed Switch should support RIP, PVLAN, VRRP, PBR, QoS, FHS, 802.1X		
15	The Proposed Switch should support for GUI-based device-management tool that provides the ability to provision the device, to simplify device deployment and manageability		
16	The Proposed Switch should support Unicast Reverse Path Forwarding (RPF) feature to mitigate problems caused by the introduction of malformed or forged (spoofed) IP source addresses into a network by discarding IP packets that lack a verifiable IP source address.		
17	The Proposed Switch should support Multidomain authentication to allow an IP phone and a PC to authenticate on the same switch port while placing them on appropriate voice and data VLAN.		
18	The Proposed Switch should support SPAN, RSPAN		
19	The Proposed Switch should support TACACS and RADIUS authentication to facilitate centralized control of the switch and restricts unauthorized users from altering the configuration.		
20	The Proposed Switch should support Multilevel security on console access to prevent unauthorized users from altering the switch configuration.		
21	The Proposed Switch should support Bridge protocol data unit (BPDU) Guard to shut down Spanning Tree PortFast-enabled interfaces when BPDUs are received to avoid accidental topology loops.		
22	The Proposed Switch should be capable of Queuing, Policing, Shaping and marking Wired and Wireless Traffic based on Class of Service (CoS) or DSCP.		
23	The Proposed Switch should support Shaped round robin (SRR) scheduling to ensure differential prioritization of packet flows by intelligently servicing the ingress queues and egress queues		
24	The Proposed Switch should support eight egress / hardware queues per port		
25	The Proposed Switch should support Sflow / NetFlow		
26	The Proposed Switch should support / facilitate application visibility and control based on Top Talkers, Top Destination, Top Protocols etc.		
27	The Proposed switch must have support for Protocol-Independent Multicast (PIM) for IP multicast routing is supported, including PIM sparse mode (PIM SM)		
28	The Proposed switch must have support for MSDP/Equivalent		
29	The Proposed switch must have support for 6 MB buffer		
30	The Proposed switch must have support for sflow or Equivalent		
31	The Proposed Switch should be capable of monitoring Wireless Flows / traffic from directly connected AP's		

32	The Proposed Switch should be capable of monitoring network traffic on Physical, VLAN & WLAN.		
33	Support for IEEE 802.1s; IEEE 802.1w; IEEE 802.1x; ; IEEE 802.3ad; IEEE 802.3af; IEEE 802.3at; IEEE 802.1D; IEEE 802.1p; and IEEE 802.1Q VLAN and		
34	Support for RMON I standards SNMPv1, v2c, and v3		
35	Support for FCC Part 15 (CFR 47); Class A ICES-003; Class A EN 55032; Class A CISPR 32;		
36	Support for UL 60950-1, CAN/CSA-C22.2 No. 60950-1, EN 60950-1, IEC 60950-1 on Safety compliance		
37	The proposed Switch must support ROHS		
38	Must support operating Temperature of 0ºC to +45ºC		
39	The proposed Solution should have all the modules from the same Vendor.		

ITEM 8. TECHNICAL SPECIFICATION FOR 48 PORT NON-POE SWITCH

Switch Brand Name and Model No. of 48 port Non-POE Switch		**Brand Name**	**Model No.**
S.No.	**Description**	**Compliance (Yes/ No)**	**Proof with Page No.**
1	The supplied product OEM should be in Gartner Magic Leader quadrant for past consecutive three years.		
2	The Proposed Switch should have the following Ports : 48 ports Gigabit. Uplink 2 x 1 / 10 Gig SFP / SFP+ based ports should support LR and SR as per the solution requirement.		
3	The proposed switch must support 80+ platinum rated power supply or - Energy-efficient Ethernet (EEE) IEEE 802.3az		
4	The Proposed Switch should support the following protocols : LISP(RFC 6830) / VXLAN(RFC 7348)		
5	The Proposed Switch should have 1 GB of DRAM with 4 GB Flash		
6	The Proposed Switch should support 4K VLAN IDs		
7	The Proposed Switch should support a modern operating system with support for model-driven programmability using REST API and Open flow		
8	The Proposed Switch should support VxLAN as a data transport overlay		
9	The Proposed Switch should have 176 Gbps and 110 Mpps of Forwarding rates		
10	The Proposed Switch should support atleast 32000 MAC Addresses with 9000 bytes of Jumbo frames		
11	The Proposed Switch should support basic IP Unicast routing protocols (static, RIPv1 & RIPv2) should be supported.		
12	The Proposed Switch should be able to discover (on both IPv4 & IPv6 Network) the neighboring device giving the details about the platform, IP		

	Address, Link connected through etc, thus helping in troubleshooting connectivity problems.		
13	The Proposed Switch should support incase of active switch fails, the standby switch must keep the role of the active switch and continues to keep the stack operational		
14	The Proposed Switch should support RIP, PVLAN, VRRP, PBR, QoS, FHS, 802.1X		
15	The Proposed Switch should support for GUI-based device-management tool that provides the ability to provision the device, to simplify device deployment and manageability		
16	The Proposed Switch should support Unicast Reverse Path Forwarding (RPF) feature to mitigate problems caused by the introduction of malformed or forged (spoofed) IP source addresses into a network by discarding IP packets that lack a verifiable IP source address.		
17	The Proposed Switch should support Multidomain authentication to allow an IP phone and a PC to authenticate on the same switch port while placing them on appropriate voice and data VLAN.		
18	The Proposed Switch should support SPAN, RSPAN		
19	The Proposed Switch should support TACACS and RADIUS authentication to facilitate centralized control of the switch and restricts unauthorized users from altering the configuration.		
20	The Proposed Switch should support Multilevel security on console access to prevent unauthorized users from altering the switch configuration.		
21	The Proposed Switch should support Bridge protocol data unit (BPDU) Guard to shut down Spanning Tree PortFast-enabled interfaces when BPDUs are received to avoid accidental topology loops.		
22	The Proposed Switch should be capable of Queuing, Policing, Shaping and marking Wired and Wireless Traffic based on Class of Service (CoS) or DSCP.		
23	The Proposed Switch should support Shaped round robin (SRR) scheduling to ensure differential prioritization of packet flows by intelligently servicing the ingress queues and egress queues		
24	The Proposed Switch should support eight egress / hardware queues per port		
25	The Proposed Switch should support Sflow / NetFlow		
26	The Proposed Switch should support / facilitate application visibility and control based on Top Talkers, Top Destination, Top Protocols etc.		
27	The Proposed switch must have support for Protocol-Independent Multicast (PIM) for IP multicast routing is supported, including PIM sparse mode (PIM SM)		
28	The Proposed switch must have support for MSDP / Equivalent		
29	The Proposed switch must have support for 6 MB buffer		
30	The Proposed switch must have support for sflow or Equivalent		
31	The Proposed Switch should be capable of monitoring Wireless Flows / traffic from directly connected AP's		

32	The Proposed Switch should be capable of monitoring network traffic on Physical, VLAN & WLAN.		
33	Support for IEEE 802.1s; IEEE 802.1w; IEEE 802.1x; ; IEEE 802.3ad; IEEE 802.3af; IEEE 802.3at; IEEE 802.1D; IEEE 802.1p; and IEEE 802.1Q VLAN and		
34	Support for RMON I standards SNMPv1, v2c, and v3		
35	Support for FCC Part 15 (CFR 47); Class A ICES-003; Class A EN 55032; Class A CISPR 32;		
36	Support for UL 60950-1, CAN/CSA-C22.2 No. 60950-1, EN 60950-1, IEC 60950-1 on Safety compliance		
37	The proposed Switch must support ROHS		
38	Must support operating Temperature of 0ºC to +45ºC		
39	The proposed Solution should have all the modules from the same Vendor.		

ITEM 9. TECHNICAL SPECIFICATION FOR FIBER TRANSCEIVER MODULES

Brand Name of Fiber Transceiver Modules			**Brand Name**	
S.No.	**Description**	**Model no.**	**Compliance (Yes/ No)**	**Proof with Page No.**
1	The supplied product OEM should be in Gartner Magic Leader quadrant for past consecutive three years			
2	1 Gbps SFP, Short Range, Multi mode fiber support			
3	10 Gbps SFP+, Short Range, Multi mode fiber support			
4	1 Gbps SFP, Long Range, Single mode fiber support			
5	10 Gbps SFP+, Long Range, Single mode fiber support			
6	1 Gbps RJ45 Transceiver			

WARRANTY	**Compliance (Yes/ No)**	**Proof with Page No.**
The product offered should have one year warranty.		

DELIVERY PERIOD	**Compliance (Yes/ No)**	**Proof with Page No.**
The item should be delivered within 4-6 weeks of issue of Purchase Order.		

DISCOUNT

S.No.	**Percentage of discount offered in Bulk orders**	**Offered discount in %**
1	6 to 10 Nos.	
2	11 to 20 Nos.	
3	above 20 Nos.	

SIGNATURE OF TENDERER ALONG WITH SEAL OF THE COMPANY WITH DATE

ANNEXURE C

BOQ – PRICE BID FORMAT

Tender No.	**IITM/SPS/CC/RC/NETWORK MANAGED SWITCHES/ 009/2019-2020**
Name of the Item	**NETWORK MANAGED SWITCHES**
Name of the Bidder	

Sl. No.	Item Description	Qty	Units	Unit Cost	GST (%) for Unit Price	Packing , forwarding and other charges whichever applicable (Rs)	GST (%) for Packing , forwarding and other charges whichever applicable	TOTAL AMOUNT Without Taxes	TOTAL AMOUNT With Taxes
1	Access Switch - 8 Port POE	1	Nos						
2	Access Switch - 8 Port NON - POE	1	Nos						
3	Access Switch -24 Port Fibre Input	1	Nos						
4	Access Switch – 24 Port POE	1	Nos						
5	Access Switch – 24 Port NON-POE	1	Nos						
6	Access Switch – 48 Port Fibre Input	1	Nos						
7	Access Switch – 48 Port POE	1	Nos						
8	Access Switch – 48 Port NON-POE	1	Nos						
9	Fiber Transceiver Module-1 Gbps SFP, Short Range Multi mode fiber support	1	Nos						
10	Fiber Transceiver Module-10 Gbps SFP+, Short Range Multi mode fiber support	1	Nos						
11	Fiber Transceiver Module-1 Gbps SFP, Long Range Single mode fiber support	1	Nos						
12	Fiber Transceiver Module- 10 Gbps SFP+, Long Range Single mode fiber support	1	Nos						
13	Fiber Transceiver Module-1 Gbps RJ45 Transceiver	1	Nos						

SIGNATURE OF TENDERER ALONG WITH SEAL OF THE COMPANY WITH DATE

SCHEDULE

Name of Organization	Indian Institute of Technology Madras
Tender Type (Open/Limited/EOI/Auction/Single)	OPEN
Tender Category (Services/Goods/works)	Goods/Services
Type/Form of Contract (Work/Supply/ Auction/ Service/ Buy/ Empanelment/ Sell)	Supply
Product Category (Civil Works/Electrical Works/Fleet Management/ Computer Systems)	**Network Managed Switches**
Source of Fund (Institute/Project)	IIT Madras
Is Multi Currency Allowed	No
Date of Issue/Publishing	**17.08.2019**
Pre- bid Meeting Date and time	**Nil**
Document Download/Bid clarification Start Date	**17.08.2019**
Bid clarification end date	**23.08.2019**
Bid submission start date	**24.08.2019**
Document Download end date	**09.09.2019**
Last Date and Time for Uploading of Bids	**09.09.2019 before 2.00p.m**
Date and Time of Opening of Technical Bid	**12.09.2019 at 4.00p.m.**
EMD	**Rs.20,000/-**
No. of Covers (1/2/3/4)	2
Bid Validity days (180/120/90/60/30)	120 Days
Address for Communication	**The Deputy Registrar** **Stores & Purchase Section** **IIT Madras** **Chennai – 600 036**
Contact No.	**Technical Related Queries:** **Mr. V. Selvaraju,B.E.,M.E.,** **Assistant Systems Engineer** **Computer Centre** **IIT Madras** **Chennai - 600 036.** **Phone No: 044- 2257 4988** **E-mail id : selva@iitm.ac.in**
Email Address	adstores@iitm.ac.in

ANNEXURE – D

PROFORMA

Sl.No.	Details	
1	Name of the company	
2	Contact person	
3	Chennai office address	
4	Phone	
5	Mobile	
6	E-maid ID	
7	Pan No.	
8	GST No.	

SIGNATURE OF TENDERER
ALONG WITH SEAL OF THE COMPANY WITH DATE